

WHAT IS CLAIMED IS:

- ✓ 1. A nucleic acid array comprising:
  - (a) at least one hybridization feature; and
  - (b) at least one background feature.
2. The nucleic acid array according to Claim 1, wherein said at least one background feature is a polymeric composition.
3. The nucleic acid array according to Claim 2, wherein said background feature polymeric composition comprises background probes that do not specifically bind to any target nucleic acids of a population of target nucleic acids that is contacted with said array under stringent hybridization conditions.
4. The nucleic acid array according to Claim 3, wherein said background feature provides a background signal in a hybridization assay that comprises: (a) a feature substrate background component; (b) a probe background component; and (c) a non-specific binding background component.
5. The nucleic acid array according to Claim 4, wherein said background probes of said background feature range in length from about 5 to about 100 nt.
6. The nucleic acid array according to Claim 5, wherein said background probes are selected from the group consisting of empirically observed inactive probes, probes forming intramolecular structures, short probes, probes having reverse polarity nucleotide analogs, probes having abasic phosphodiester or probes modified nucleotidic units.
7. The nucleic acid array according to Claim 1, wherein said background feature provides a signal in a hybridization assay that is substantially the same as a signal generated by a validated background feature made up of empirically observed inactive probes.
8. The nucleic acid array according to Claim 1, wherein said validated background

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feature is made up of nucleic acids having a nucleic acid sequence selected from the group consisting of SEQ ID NOS: 1 to 53.

9. The nucleic acid array according to Claim 5, wherein said background feature tests positive in a two-color self-self array hybridization assay.

✓ 10. A nucleic acid array comprising:

- (A) a plurality of nucleic acid hybridization features; and
- (B) at least one polymeric background feature, wherein said polymeric background feature:

- (i) provides a background signal in a hybridization assay that comprises:
  - (i) a feature substrate background component;
  - (ii) a probe background component; and
  - (iii) a non-specific binding background component; and
- (ii) tests positive in a two-color self-self array hybridization assay.

11. A nucleic acid array according to Claim 10, wherein said array comprises at least two different polymeric background features.

12. A nucleic acid array according to Claim 11, wherein said at least two different polymeric background features differ from each other in terms of constituent background probe length.

✓ 13. A method of detecting the presence of an analyte nucleic acid in a sample, said method comprising:

- (a) providing a nucleic acid array comprising:
  - (i) at least one hybridization feature to which said analyte nucleic acid specifically binds under stringent hybridization conditions; and
  - (ii) at least one background feature;
- (b) contacting said nucleic acid array with said sample under stringent hybridization conditions;
- (c) detecting a hybridization signal from said hybridization feature and

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background signal from said background feature;

- (d) subtracting said background signal from said hybridization signal to obtain a background corrected hybridization signal; and
- (e) relating said background corrected hybridization signal to the presence of said analyte target nucleic acid in said sample to detect the presence of said analyte target nucleic acid in said sample.

14. The method according to Claim 13, wherein said method further comprises a labeling step.

15. The method according to Claim 14, wherein said labeling step comprises labeling any analyte target nucleic acids present in said sample with a member of a signal producing system prior to said contacting step (b).

16. The method according to Claim 14, wherein said labeling step comprises labeling any analyte target nucleic acids present on said array following step(b) with a member of a single producing system.

17. The method according to Claim 13, wherein said background feature is a polymeric composition that comprises background probes that do not specifically bind under stringent hybridization conditions to any target nucleic acids of said sample.

18. The method according to Claim 17, wherein said background feature provides a background signal following said contacting step that comprises: (a) a feature substrate background component; (b) a probe background component; and (c) a non-specific binding background component.

19. The method according to Claim 18, wherein said background probes of said background feature range in length from about 5 to about 100 nt.

20. The method according to Claim 18, wherein said background probes are selected from the group consisting of empirically observed inactive probes, probes forming intramolecular structures, short probes, probes comprising reverse polarity nucleotide

analogues, probes comprising abasic phosphodiester or probes comprising modified nucleotidic units.

21. The method according to Claim 13, wherein said background feature provides a signal that is substantially the same as a signal generated by a validated background feature made up of empirically observed inactive probes.

22. The method according to Claim 21, wherein said validated background feature is made up of nucleic acids having a nucleic acid sequence selected from the group consisting of SEQ ID NOS: 1 to 53

23. The method according to Claim 13, wherein said background feature tests positive in a two-color self-self array hybridization assay.

24. A kit for use in a hybridization assay, said kit comprising:  
a nucleic acid array comprising:  
(a) at least one hybridization feature; and  
(b) at least one background feature.

25. The kit according to Claim 24, wherein said kit further comprises reagents for generating a labeled target nucleic acid sample.

26. The kit according to Claim 24, wherein said kit further comprises a hybridization buffer.

27. The kit according to Claim 24, wherein said kit further comprises a wash medium.

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